



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

College Algebra with Applications. By E. J. WILCZYNSKI. Edited by H. E. SLAUGHT. Allyn and Bacon, New York, 1916. xx + 507 pages.

"The material included in this book," says the author in his suggestions to the instructor, "probably contains everything ever given under the title *College Algebra* in any American college." The problem of making a selection that will suit the needs of all teachers of algebra is one that might well daunt the most ingenious maker of textbooks. Professor Wilczynski has wisely refrained from undertaking a solution of this problem and has instead given a great storehouse of materials from which the teacher can select to suit his own needs. To the reviewer this seems a very reasonable thing to do. Nothing is so exasperating as the constant worry of some earnest souls about the exact value of this or that tiny theorem in a course. Shall he lay stress on this problem? Shall he insist on a thorough mastery of this principle in the tenth week of the course? Is this the best sequence in presenting the subject? After many years of arranging courses and of trying to find out what material is most available for students the reviewer has given the problem up, as having too many indeterminates, and not enough exact equations. The best he has been able to do is to try to standardize his methods a little, and even in this he has found that one plan of attack will succeed very well with one class and fail with another. It is a problem quite analogous to that of the physician who has first to determine as best he can what is the matter with his patient, and then has the further problem as to the exact drug to use to get the right reaction from the particular patient involved.

The book contains sixteen chapters, beginning with one on the number system that will do much to clear up the difficulties which students (and teachers too) find with the subject of irrationals and complex numbers. Following this come chapters on linear functions, quadratic functions, functions of higher degrees, fractional functions, irrational functions and power functions. Throughout appear many applications to such subjects as the measurement of length, time, mass, the theory of the vernier, slide rule, logarithmic paper, velocity, acceleration, mass, density, and much else of great value to the teacher who is looking for "vitalizing material" for the subject. The author has undertaken to discuss these applications "as carefully as if the book were intended as a treatise on chemistry or physics." There is a chapter on determinants of the first, second and third orders, and another on determinants of higher orders separated from the first by a chapter on permutations and one on probabilities.

Chapter XIII, on simultaneous quadratics, is very full and clear and will be found one of the most helpful in the book. The last three chapters are devoted to the subject of limits, series, both finite and infinite, with a careful statement of the usual tests for convergence. An appendix contains a short table of logarithms and a mortality table.

The reviewer would be slow to predict an immense demand for Professor Wilczynski's book. He feels almost certain that it will not receive half the use which it deserves, the reason being that the average teacher does not want to select. He likes to have an exact statement of just what he is to teach, and the

student likes to have an exact statement of just what he is to learn. This is unfortunate, and not altogether the fault of the teacher. The teacher who omits a chapter from a book is apt to be looked upon with suspicion as a *franc-tireur*, or it may be darkly hinted that he does not understand the chapter well enough to teach it. If it should turn out that there is a large demand for this book the reviewer will take it as a sign that the teacher of mathematics is learning to be less dependent on his textbook. In any event the book will be found in the library of every progressive teacher of algebra.

D. N. LEHMER.

UNIVERSITY OF CALIFORNIA.

PROBLEMS FOR SOLUTION.

SEND ALL COMMUNICATIONS ABOUT PROBLEMS TO B. F. FINKEL, Springfield, Mo.

ALGEBRA.

481. Proposed by ROGER E. MOORE, University of Wisconsin.

Show that if the coefficients in the binomial expansion of $(a - b)^n$ (n being a positive integer) be multiplied each to each by the corresponding terms of an arithmetical progression of $(n + 1)$ terms, then the algebraic sum of the $(n + 1)$ products will be zero.

482. Proposed by C. F. GUMMER, Kingston, Ontario.

Find the necessary and sufficient condition that the infinite sequences of positive quantities (a_1, a_2, \dots) and (b_1, b_2, \dots) may be such that the series $a_1x_1 + a_2x_2 + \dots$ and $b_1x_1 + b_2x_2 + \dots$ either both converge or both diverge when the x 's are any positive quantities.

GEOMETRY.

510. Corrected statement (given incorrectly in the March issue).

Show how to find the equation of a line perpendicular to a side of the triangle of reference and passing through a given point, in a system of homogeneous coördinates, using the condition that two lines be parallel in this system but not the condition that two lines be perpendicular. Illustrate the method by using it to find the trilinear coördinates of the points of contact of an escribed circle of the triangle.

514. Proposed by VINCENTE MILLS, Manila, P. I.

Given an equilateral triangle, the length of the sides being unknown, and a point within, the distances from which to the vertices are given, required the length of a side of the triangle and the angles subtended at the given point by the sides of the triangle.

515. Proposed by C. F. GUMMER, Kingston, Ontario.

Show how to cut up a square carpet and make it into three equal square carpets. Estimate the total length of seam in comparison with a side of the original carpet.

CALCULUS.

429. Proposed by N. P. PANDYA, Sojitra, India.

Trace the curve given by the solution of

$$x^2 \frac{d^2y}{dx^2} + x \frac{dy}{dx} = \frac{dy}{dx} + \frac{1 - 4x^2}{(1 - x^2)^{3/2}}.$$